

## ABSTRACT

Method and apparatus for protocol pattern identification in protocol data units (PDUs). Techniques disclosed utilize the concept of stages. Within each stage, a protocol identification apparatus attempts to find a pattern match between the bits of the protocol data unit and the predefined bits of search patterns for a particular layer of protocol encapsulation. Once found the apparatus resets itself and begins the search anew for the next layer of encapsulation. The user is provided the ability to look for a particular pattern in a higher layer protocol without having knowledge of which lower layer protocols were used. Both hardware and software implementations of this apparatus provide for very fast identification of the protocol data units. Information regarding which encapsulations are present in a particular protocol data unit are provided saving software routines time when they process each packet. Also, by informing the apparatus regarding the encapsulation patterns desired, the protocol identification apparatus can filter the protocol data unit at runtime which saves additional software routines from spending time later processing packets that are not needed, and in addition, can save valuable capture buffer space by discarding those protocol data units not of interest.